5(2)

AUTHOR: Golubtsova, R. B. SOV/20-124-1-25/69

TITLE: Investigation of the Conditions for the Separation of Cementite From Iron-Carbon Alloys (Issledovaniye usloviy izolirovaniya tsementita iz splavov zhelezo-uglerod)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 1, pp 91 - 93 (USSR)

ABSTRACT: Institut geokhimii i analiticheskoy khimii AN SSSR (Institute of Geochemistry and Analytical Chemistry of the AS USSR) needed pure cementite for analytical purposes. The author presents the publications on iron carbides (Refs 1,3) and electrolytes which are used for the precipitation of cementite (Refs 4-7). She determined the potentials of a cementite-containing alloy as related to a calomel electrode (Refs 8-10) and found that the electrolyte Nr 1, consisting of 5 ml HCL (1.19) and 5 g citric acid as well as of 1000 ml water is the most suitable for the said precipitation. The increase in the amount of citric acid does not influence the yield of the anode powder nor its chemical composition. It can be seen from table 1 that a current density of 0.03 - 0.05 A/cm^2

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is most suitable and exerts no effect on the chemical composition of the phase Fe_3C. Experiments have proved that the ratio between iron and carbon in the phase correspond to the stoichiometric composition of the cementite. At an increase of the current density up to 0.07 A/cm^2 the carbide phase seems to be partly oxidized. At 0.1 A/cm^2 the cementite precipitate is decomposed. To determine the optimum conditions for the separation of Fe_3C the reproducibility of the results under various durations of the experiment in the same electrolyte was checked (Table 2). Within 1.5 hours the carbide phase was not decomposed, since in all cases stoichiometric Fe_3C was separated from the alloys investigated (C 5, Fe 95; C 2, Fe 98 per cent by weight, produced by P. T. Kolomytzev). The cementite separation can proceed satisfactorily without cooling as well. Finally the details of the procedure are described. X-ray structure analysis carried out in the Institute of Geochemistry and Analytical Chemistry, AS USSR confirmed the existence of a pure cementite (Fig 2, Table at page 78). There are 1 figure, 2 tables, and 11 references, 9 of which are Soviet.

Investigation of the Conditions for the Separation of Cementite From Iron—Carbon Alloys SOV/20-124-1-25/69

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences, USSR)

PRESENTED: August 8, 1958, by I. P. Bardin, Academician

SUBMITTED: July 29, 1958

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GOLUBTSOVA, R.B.

PHASE I BOOK EXPLOITATION SOV/4558
SOV/16-8-5

Akademiya nauk SSSR. Institut metallurgii

Metallurgiya, metallovedeniye, fiziko-khimicheskiye metody issledovaniya (Physicochemical Research Methods in Metallurgy and Metal Science) Moscow, Izd-vo AN SSSR, 1960. 251 p. (Series: Its: Trudy, vyp. 5) Errata slip inserted. 2,800 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A.A. Baykova.

Resp. Ed.: I.P. Bardin, Academician (Deceased); Ed. of Publishing House: V.A. Klimov; Tech. Ed.: T.P. Polenova.

PURPOSE: This collection of articles is intended for metallurgists and metal researchers.

COVERAGE: The collection contains articles on metallurgy, metal science, and physicochemical research methods. Separate articles discuss the structure and properties of some metals and alloys. The effect of cold treatment and inclusions on the properties of alloys are analysed, and instruments and

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S/075/60/015/004/021/030/XX
B020/B064

AUTHOR: Golubtsova, R. B.

TITLE: Determination of Gamma Quantities of Boron in Complex Alloys

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 4, pp. 481 - 486

TEXT: The aim of the present paper was to develop a simple, quick, and accurate method of determining some γ of boron in complex alloys on the basis of Ni, Fe, Co, and Ti, containing also W, Nb, Mo, Cr, Si, and other elements, from weighed portions of 0.01 - 0.05 g. Alizarin, quinalizarin, and carminic acid are most frequently used to determine boron photometrically. When comparing reagents such as curcumin, quinalizarin, chromotrope-2B, carminic acid and arsenazo-2, the two last-mentioned substances were found to yield the best results in determining γ-quantities of boron. F. P. Zorkin (Ref. 1) was the first to suggest carminic acid for the determination of boron. V. A. Kazarinova-Oknina (Ref. 2) used carminic acid for the quantitative determination of boron in borate ores; in this connection it is recommended to use a 0.005% carminic acid solution in

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concentrated sulfuric acid (Ref. 3). To clarify the role played by time in the development of the maximum color intensity of the boron - carminic acid complex, a spectrophotometric determination of boron was attempted by measuring the optical density in intervals of 15 minutes. The results confirm that 1γ of boron can be quantitatively determined with carminic acid in the presence of not more than 10γ of Ti^{IV}, 50γ of Mo^{VI}, 50γ of Fe^{III}, 75γ of W^{VI}, or 200γ of Ni^{II}. An attempt was made toward a spectrophotometric determination of gamma quantities of boron with chromotrope-2B, as suggested by A. S. Komarovskiy and N. S. Poluektov (Refs. 4-5), and with the reagent arsenazo-2 synthesized by V. I. Kuznetsov for color tests for uranium and thorium (Ref. 6). Boron attains its full color intensity with a 0.01% chromotrope-2B solution in concentrated H_2SO_4 after 45 minutes, and remains stable for 24 hours. A color change from violet to light blue takes place in the presence of boron. 0.07γ of B/ml was determined to be the minimum of boron with chromotrope-2B; the minimum dilution is 1:20,000,000. 1γ of B can be determined with a 0.01% chromotrope-2B solution in the presence of a maximum of 5γ of Ti^{IV}, 5γ of W^{VI}, 55γ of Mo^{VI}, Determination of Gamma Quantities of Boron in Complex Alloys

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B020/B064

75γ of Ni^{II}, and 100γ of Fe^{III}. The full color intensity of the boron complex with a 0.005% arsenazo-2 solution is attained after 35 minutes; the color changes from violet to dark blue, and remains stable for 24 hours. In this case the minimum is 0.1γ B/ml, and the minimum dilution is 1:10,000,000. 1 γ of B can be determined in the presence of 75γ of Ti^{IV}, 100γ of W^{VI}, 100γ of Mo^{VI}, 125γ of Ni^{II}, and 125γ of Fe^{III}. The solutions of these boron complexes with chromotrope-2B and arsenazo-2 obey the Beer law. The time of analysis is approximately 15 minutes. No large amounts of oxidizing agents are necessary for oxidation. Ammonium persulfate is the most effective oxidizing agent in determining boron in titanium containing alloys. After the dissolution of the weighed portion of alloy, the accompanying elements are separated by N. Chizhevskiy's mercury cathode method (Ref. 7). For this purpose, the author suggests a funnel electrolyzer of glass (Fig. 1) with double walls for water circulation. Then, boron is separated from Ti and Zr with a lye. The results obtained confirm the accuracy and reproducibility of the method suggested (Table 1). Table 2 shows the results for B in Ni, Co, and Fe alloys. After the separation of titanium with lye and evaporating with H_2SO_4, B can be

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Determination of Gamma Quantities of Boron in Complex Alloys

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determined with carminic acid, chromotrope-2B, or arsenazo-2. At a low boron content, it is also possible to determine boron by the addition method (Table 3). The calibration curve for boron determination in titanium alloys is given in Fig. 2. The course of analysis is described for the determination of boron in chrome-nickel, cobalt, iron and titanium alloys. There are 2 figures, 3 tables, and 23 references: 8 Soviet, 13 US, 1 British, and 1 Austrian.

ASSOCIATION: Institut metallurgii im. A. A. Baykova AN SSSR, Moskva (Institute of Metallurgy imeni A. A. Baykov of the AS USSR, Moscow)

SUBMITTED: May 28, 1959

GOLUBTSOVA, R.B.

Determination of gamma quantities of boron in complex alloys.
Zhur.anal.khim. 15 no.4:481-486 Jl-Ag '60. (MIRA 13:9)

1. A.A.Baikov Institute of Metallurgy, Academy of Sciences, U.S.S.R., Moscow.
(Boron--Analysis)

18.9200

~~5(2) 18(6)~~ 67948

AUTHORS: Golubtsova, R. B., Mashkovich, L. A. SOV/20-130-1-21/69

TITLE: Investigation of Metallic Compounds Formed in the Interaction of a Five-component Solid Nickel Solution With Titanium Carbide

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 1, pp 79-81 (USSR)

ABSTRACT: In the system mentioned in the title, the formation of titanium carbide or a phase on the basis of this carbide is most probable. Other metallic carbides may form part of the solid solutions of titanium carbide. If the difference in the lattice periods is not very great, the carbides with equal (isomorphic) crystal structure always form an uninterrupted series of solid solutions. Carbides of the metals of groups IV and V may be soluble with the metallic carbides of group VI to a limited extent only. The authors dissolved samples of alloys (melted by L. I. Pryakhina and O. V. Ozhimkova), after thermal treatment, electrochemically in an electrolyte (method described in Ref 7). The experiments showed that none of the alloys contained an intermetallic phase. The carbide phase was isolated in another electrolyte: 100 ml of HCl (1.19), 100 g of citric acid, 5 g of succinic acid, 1000 ml of water, current density 0.5 a/cm^2, cooling with ice (Ref 7). In an alloy with 0.1% of TiC, no separation of excess phases occurred,

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since the composition of this alloy corresponds to a homogeneous solid solution on nickel basis. The phase analysis of the alloys with a TiC content of 1.00; 4.00; 8.00% showed the presence of a carbide phase of complex composition in the alloys. Table 1 shows the chemical analysis of the carbide powders isolated. Only traces of nickel, and small quantities of aluminum were found. This proves that Ni and Al form less stable carbides than Ti, W and other metals, and are not part of the titanium-carbide phase. Table 1 shows that titanium prevails in the carbide phase (39 - 40%). Consequently, the titanium carbide is the basis of the carbide phase. The total content of the carbide-forming elements Ti, W, Mo and Cr is 52 - 54% expressed in gram-atomic percentage, the content of C being 44 - 46%. Thus, the ratio between the sum of carbide-forming elements and carbon is very close to 1 : 1. The authors assert that a formula of the carbide MeC may be assigned to the carbide precipitate, and this formula may be expressed as Ti(W,Mo,Cr)C. On the basis of the X-ray structural analysis (made by A. Ya. Snetkov), the carbide phase has a cubical, face-centered lattice of the TiC type. Parameter a = 4.30 - 4.32 kX.

If the formula of the complex carbide is interpreted to denote

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Investigation of Metallic Compounds Formed in the Interaction of a Five-component Solid Nickel Solution With Titanium Carbide SOV/20-130-1-21/69

the individual carbides TiC, WC, MoC and Cr_4C forming solid solutions with each other, the (theoretically) required carbon amount (Table 2), as well as the content of single carbides in the anodic powders, can be computed. Thus, the authors proved that only 2 phases participate in the equilibrium of the multiple-component system of the alloys investigated: the solid 5-component nickel solution, and the solid solution of titanium carbide. The name of I. I. Kornilov was mentioned in the text. There are 3 tables and 7 Soviet references.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences, USSR)

PRESENTED: August 14, 1959, by I. P. Bardin, Academician

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SUBMITTED: July 20, 1959

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18.1250

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SOV/20-130-2-20/69

AUTHORS: Golubtsova, R. B., Ruda, L. A.

TITLE: Investigation of Metallic Compounds in Multicomponent Nickel Alloys Containing Niobium

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 2, pp 318 - 321 (USSR)

ABSTRACT: In the present paper, the niobium-containing excess phases in the system Ni-Cr-W-Mo-Nb-Ti-Al are investigated with respect to their composition and structure with different Ni-amounts in the alloys. The authors' investigations showed that solid solutions were formed on the basis of the compound Ni_3Nb. Cast alloys (prepared by L. I. Pryakhina) were investigated after heating them up to 1200°, keeping them at this temperature for 200 h. and cooling them in air. Figure 1 shows the microstructure of these alloys. Considering the high oxidizability of the anodic precipitate, electrode potentials of Ni_3Nb and the solid γ-solution were measured in various electrolytes (Fig 2), and the optimum electrolyte was chosen in this way. Table 1 shows the isolation of the Ni_3Nb-phase in various electrolytes at room

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temperature. By microchemical analysis of the anodic precipitate from different electrolytes the same composition of Ni_3Nb near the stoichiometric one was proved in all cases. Table 4 presents the results of the influence of current density on yield and composition of the Ni_3Nb-phase The authors assume that the yield of the phase is reduced at a higher current density due to the heating of the electrolyte. Oxidative reactions caused by the anion discharge did not take place. The shape of the polarization curve (Fig 3) proves that this process occurs without a drop in the potential values. Table 5 shows that at -18° and 0° a metallic phase on Ni_3Nb-basis is separated (yield of the phase 16.30%). On cooling to -8°, both the Ni_3Nb-phase and the solid solution are passivated. This increases the yield of the phase. The said passivation is evidently due to the reduced activating effect of the Cl-ions on intense cooling. On the basis of the above results, the authors determined the optimum isolating process for the Ni_3Nb-phase. Table 2 and figure 4 show the results of the intermetallide and the X-ray structural analysis by means of the X-ray camera of

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Investigation of Metallic Compounds in Multicomponent SOV/20-130-2-20/69
Nickel Alloys Containing Niobium

type GFTI-1. The phase separating from all alloys forms a solid solution on the basis of the metallic compound Ni_3Nb which has a rhombic crystal lattice. Considering the near values of atomic radii, it can be assumed that the Ni-atoms (1.24 Å) can be substituted by Cr-atoms (1.28 Å), and the Nb-atoms (1.47 Å) by W-atoms (1.41 Å) and Mo-atoms (1.40 Å). Therefore, the authors write down the formula for the compound developing in the alloy as follows: $(Ni,Cr)_3(Nb,W,Mo)$. Table 5 shows the distribution of the alloying elements between the solid γ-solution and the Ni_3Nb-phase on account of the analysis of the anodic precipitate and the electrolyte. The name of I. I. Kornilov is mentioned in the paper. There are 4 figures, 5 tables, and 2 Soviet references.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences, USSR)

PRESENTED: August 14, 1959, by I. P. Bardin, Academician

SUBMITTED: July 20, 1959

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S/020/60/134/006/016/031
B016/B067

AUTHORS: Golubtsova, R. B. and Mashkovich, L. A.

TITLE: Study of the Influence Exerted by the Aging Time on the Formation and the Composition of the γ'-Phase in Alloys of the System Ni-Cr-W-Al-Ti

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 6, pp. 1353-1355

TEXT: According to microstructural analysis (L. I. Pryakhina and O. V. Ozhimkova, Ref. 1) it was found that the Ni-Cr-W-Al-Ti alloys consist of two phases, i.e., of a γ-solid solution and the γ'-phase. To study the composition and the structure of the phases the authors carried out a special investigation which was based on an electrolytical isolation of the excess phases. To isolate the γ'-phase from the alloys, the authors used an electrolyte consisting of 50 ml HNO_3, 20 ml $HClO_4$ per 1000 ml water (Ref. 4). The anodic powders separated were dissolved in aqua regia with subsequent hydrolytic isolation of tungsten. Al, Ni,

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Study of the Influence Exerted by the Aging Time on the Formation and the Composition of the γ'-Phase in Alloys of the System Ni-Cr-W-Al-Ti

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and Cr were determined in the filtrate. It was found necessary to prove the possibility of chemically determining gamma amounts of chromium with diphenyl carbazide on the background of obviously predominating elements. On the basis of the investigations rational conditions of determining chromium were developed. Since the high amount of tungsten which is contained in the anodic powders (~20%) partly carries along titanium in the precipitation, titanium was determined in a special weighed-in portion (0.01 g). To fix tungsten 1.70 H_3PO_4 were added to the solution. The results of the chemical analysis are shown in Table 1. To study the electrochemical dissolution of the alloys the authors isolated the excess phase in the electrolyte which they had proposed earlier (Refs. 5,6): 35 g citric acid, 5 g $(NH_4)_2SO_4$, 15 ml HNO_3 per 1000 ml water. Table 1 shows the chemical composition of the phase isolated in this connection. As may be seen therefrom the composition of the γ'-phase remains unchanged if the aging duration is extended from 0 to 10,000 h. The ratio of Ni to Σ Al, Ti, Cr, expressed in atom%, amounts to approximately 3.

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Study of the Influence Exerted by the Aging Time on the Formation and the Composition of the γ'-Phase in Alloys of the System Ni-Cr-W-Al-Ti

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This ratio for the phase which was separated in the electrolyte: 50 ml HNO_3, 20 ml $HClO_4$ per 1000 ml water was closer to 3 than that of the phase which was separated from the electrolyte: 35 g citric acid, 5 g $(NH_4)_2SO_4$, 15 ml HNO_3 per 1000 ml water. This shows that the former electrolyte is better suited for separating the γ'-phase. On the basis of an X-ray structural analysis (by A. Ya. Snetkov) the γ'-phase was observed in all anodic powders with a lattice parameter a = 3.573 kX which forms a solid solution on the basis of Ni_3Al. However, no superstructural lines which are characteristic of pure Ni_3Al, were observed. In all powders obtained from hardened alloys as well as from the 10,000 h old alloys, weak lines of a phase were proven, whose nature has not yet been explained. For the purpose of determining the distribution of the elements over the phases, the authors set up a balance of electrolysis products for a 1000 h old alloy. Furthermore, they calculated the content of elements in wt% in the solid γ-nickel solution in the γ'-phase. The method used here made it possible to determine the metalloid γ'-phase in the

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Study of the Influence Exerted by the Aging Time on the Formation and the Composition of the γ'-Phase in Alloys of the System Ni-Cr-W-Al-Ti

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5-component Ni alloys investigated. Also the influence exercised by a long aging time on the composition and the structure of this phase could be studied. The authors mention a paper by N. I. Blok et al (Ref. 3). There are 1 table and 6 Soviet references.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences, USSR)

PRESENTED: May 30, 1960, by I. I. Chernyayev, Academician

SUBMITTED: May 17, 1960

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GOLUBTSOVA, R.B.

PHASE I BOOK EXPLOITATION SOV/5994

Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov. Seminar po zharostoykim materialam. Kiyev, 1960.

Trudy Seminara po zharostoykim materialam, 19-21 aprelya 1960 g. Byulleten' no. 6: Khimicheskiye svoystva i metody analiza tugoplavkikh soyedineniy (Transactions of the Seminar on Heat-Resistant Materials of the Insitute of Powder Metallurgy and Special Alloys of the Academy of Sciences of the Ukrainian SSR. Held 19-21 April, 1960. Bulletin no. 6: Chemical Properties and Methods of Refractory Compound Analysis). Kiyev, Izd-vo AN UkrSSR, 1961. 124 p. 1500 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov.

Editorial Board: I. N. Frantsevich; G. V. Samsonov, Resp. Ed.; I. M. Fedorchenko, V. N. Yeremenko, V. V. Grigor'yeva, and T. N. Nazarchuk; Tech. Ed.: A. A. Matveychuk.

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Transactions of the Seminar (Cont.) SOV/5994

PURPOSE: This collection of articles is intended for chemists, engineers, workers at scientific research institutes and plant laboratories, senior students, and aspirants at chemical and metallurgical schools of higher education.

COVERAGE: Articles of the collection present the results of studies of the chemical properties of refractory compounds (carbides, borides, nitrides, phosphorides, silicides), refractory and rare metals, and their alloys, and some original methods of analyzing these materials, which are now being utilized in the new fields of engineering. No personalities are mentioned. Each article is accompanied by references, mostly Soviet.

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AVAILABLE: Library of Congress

SUBJECT: Metals and Metallurgy

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S/700/61/000/006/014/018
D267/D304

5.2610

AUTHORS: Golubtsova, R. B. and Mashkovich, L. A.

TITLE: Investigating metallic compounds forming as a result of reactions between multi-component nickel (solid) solutions with titanium carbide

SOURCE: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov. Seminar po zharostoykim materialam. Kiyev, 1960. Trudy no. 6: Khmicheskiye svoystva i metody analiza tugoplavkikh soyedineniy. Kiyev, Izd-vo AN UkrSSR, 1961, 109-113

TEXT: The authors investigated the excess phases formed in systems where 5-component and 6-component solid solutions of nickel reacted with TiC. The most probable in such a system is the formation of TiC or a phase based on TiC, whereas other carbides of metals can enter into solid solutions of TiC. The alloy specimens were hardened at 1200°C for 115 hours and cooled in water. Besides Ni, the alloys contained Ti, C, W, Mo, Cr, Al (some also Nb),

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but no intermetallic phases. The carbide phase was separated in an electrolyte consisting of 100 ml HCl (sp. gr. 1.19), 100 g citric acid, 5 g succinic acid and 1000 ml water; the electrolyte was cooled with ice and the current density was 0.5 A/cm^2. No excess phases could be separated from alloys containing 0.1% TiC, whereas a carbide phase of complex composition was present in alloys containing 1.0, 4.0 and 8.0% TiC. The anodic residues obtained were washed, dried and subjected to chemical and X-ray analysis. It was found that the carbide powders contained almost no Ni, whereas the Ti content was 39 - 40%, that of Ti, W, Mo and Cr 52 - 54%, and the C content -- 44 - 46%. Thus, the carbide residue seems to have the composition MeC. The carbide phase has a cubic face-centered lattice of the TiC type (a = 4.30 - 4.32 kX). The results of chemical analysis of carbide powders separated from the alloys of the system Ni - TiC show that the increase of the proportion of TiC in original alloys (while the Nb content remains constant) is associated with that of Ti content in carbide powders and with a decrease of Nb content. The amounts of other components, including C, vary very litlle, the total metal/carbon ratio being close to 1:1. It may be, therefore, assumed that the separated TiC is substantially a solid solution of the carbides of Nb, Mo, W and Cr in TiC. The carbide residue can be envisaged as consisting of TiC, NbC, WC, Mo_2C and $Cr_{23}C_6$, which form mutual solid solutions. There are 7 tables and 11 references: 10 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Institut metallurgii AN SSSR im. A. A. Baykova (Institute of Metallurgy im. A. A. Baykov, AS USSR)

GOLUBTSOVA, R.B.; MASHKOVICH, L.A.

Study of the metallic compounds formed during the interaction of multicomponent nickel solutions with titanium carbide. Biul. Inst. metaloker. i spets. splav. AN URSR no.6:109-113 '61.
(MIRA 15:[illegible])

1. Institut metallurgii AN SSSR imeni A.A.Baykova.
(Titanium carbide)(Nickel alloys)

21496

5.2610 1273,1043,1160

S/020/61/137/004/020/031
B103/B208

AUTHOR: Golubtsova, R.B.

TITLE: Study of the nature of a chemical compound in the system Ti - Si

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 4, 1961, 859 - 861

TEXT: The author studied the metallic compound in titanium alloys with a small (0.25 - 7.5 wt% Si) silicon content (prepared and supplied by Ye. N. Pylayeva). The alloys were annealed at 1000°C for 24 hr, and at 500°C for 500 hr, and then quenched in water. The compound studied was electrolytically deposited in insoluble state on the anode. Since the intermetallic phase Ti_5Si_3 at a Si content of 0.25 - 2.0% could not be deposited in any electrolyte known so far, the author developed a new electrolyte: 15 ml H_2SO_4 (1,84), 3 g ascorbic acid (or salicylic acid), and 1000 ml methanol (Ref. 5, author's certificate no. 133237, 1960). The phase Ti_5Si_3 is a titanium silicide of exactly stoichiometric composition

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Study of the nature of ... S/020/61/137/004/020/031
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Ti : Si = 2.85% or 1.68 atom%. This was confirmed by microchemical and X-ray analyses (the latter was performed by M.A. Volkova). The substance deposited on the anode was scraped off, rinsed with water during centrifuging, and then with alcohol; finally, it was dried in the hydrogen stream on the oil bath. The optimum current density for composition and yield of Ti_5Si_3 was between 0.03 and 0.05 a/cm^2. The sample is considerably heated at 0.1 a/cm^2. There are 1 figure, 3 tables and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English language publication reads as follows: M. Hansen, H.D. Kessler, D.J. McPherson, Trans. Am. Soc. Metals, 44, 518 (1952).

ASSOCIATION: Institut metallurgii im. A.A. Baykova Akademii nauk SSSR (Institute of Metallurgy imeni A.A. Baykov of the Academy of Sciences USSR)

PRESENTED: October 27, 1960 by I.I. Chernyayev, Academician

SUBMITTED: May 18, 1960

Card 2/2

S/020/61/137/003/017/030
B103/B208

AUTHOR: Golubtsova, R. B.

TITLE: Composition and structure of the titanium - chromium compound

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 3, 1961, 593-596

TEXT: Considering the wide application of titanium and its alloys, the author studied titanium - chromium alloys (from 1.0 to 80 wt% Cr) which contain a chemical compound as one of the phases. The available publications disagree on whether the formula of this compound corresponds to $TiCr_2$ or Ti_2Cr_3. In order to solve this problem, the author used her previous methods of anodic dissolution of alloys, in which the chemical compound is isolated and studied as an insoluble component (Ref. 11: R. B. Golubtsova, author's certificate no. 120,925 of April 28, 1959; Ref. 12: DAN, 106, no. 6, 1011, 1956; Ref. 13: DAN, 111, no. 4, 824, 1956; Ref. 14: DAN, 118, no. 1, 1958; Ref. 15: DAN, 124, no. 1, 1959; Ref. 16: DAN, 130, no. 2, 318, 1960). The alloys were prepared by

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T. S. Chernova by fusing the components in the arc furnace, annealed at 1200-600°C for 4-600 hr, and dissolved anodically. The author developed a new electrolyte (A): 5 ml HCl (1.19), 3 g succinic acid, and 1000 ml methanol, which need not be cooled either before or during electrolysis. The anode was placed in a bag of tracing cloth. The composition of electrolyte A was determined by measuring the anodic potential relative to a saturated calomel electrode with the aid of the compensation method (Fig. 3). Electrolytes I-III (I: 3 ml concentrated H_2SO_4, 3 g ascorbic acid; II: H_2SO_4 like I, 3 g succinic acid; III: 5 ml HCl (1.19), 3 g salicylic acid, I-III in 1000 ml methanol) were used as standard solutions. The author concludes from Fig. 3 that the potential is stabilized at once and remains stable. Electrolyte A shows a high selectivity, as anodic powder containing pure $TiCr_2$ (alloys with 20% and 65% Cr) was not dissolved in it at 21°C, not even after 24 hr. Experiments in electrolytes I-III gave satisfactory and well reproducible results. The chromium-to-titanium ratio corresponded in all experiments to the theoretical one in $TiCr_2$, and was 2.0 (atom%) or 2.17 (wt%).

The author determined 0.03-0.1 a/cm^2 to be the optimum anodic current density, at which $TiCr_2$ of stoichiometric composition is formed as the insoluble component on the anode. Material from the Ti - Cr alloys was obtained from the electrolyte A (1000 ml) by electrolysis for 1.5 hr. After the end of dissolution, the anodic deposit was scraped off, washed three times with distilled water during centrifuging, and two times with alcohol during decantation, then dried in the oil bath at 160°C in the hydrogen stream. Both microchemical and X-ray analysis confirmed the content in the $TiCr_2$ phase. The latter analysis was performed at the TsNIITMash (Central Scientific Research Institute of Technology and Machinery). A paper by N. I. Blok is mentioned. There are 4 figures, 3 tables, and 17 references: 12 Soviet-bloc and 5 non-Soviet-bloc. The reference to the English-language publication reads as follows: Ref. 8: C. Cuff et al. J. Metals, 4, 848 (1952).

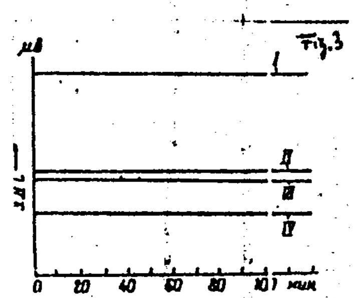
Composition and structure of the ... S/020/61/137/003/017/030
B103/B208

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences USSR)

PRESENTED: October 27, 1960, by I. I. Chernyayev, Academician

SUBMITTED: September 30, 1960

Legend to Fig. 3: Values of electrode potentials of the alloy Ti - Cr (70% Cr) in various electrolytes: I) in A, II) in II, III) in I, IV) in III. Abscissae: min, ordinates: emf in μv.



Card 4/4

S/598/62/000/007/014/040
D244/D307

AUTHOR: ~~Golubtsova, R. B.~~

TITLE: Composition of metallic compounds forming in the alloys of binary systems titanium-chromium and titanium-silicon

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. no. 7, Moscow, 1962. Metallokhimiya i novyye splavy, 110-113

TEXT: To obtain the composition of compounds forming in the alloys of Ti-Cr and Ti-Si systems, the method of anodic dissolution of the alloys was used, the compounds being deposited on the anode. The powdery deposits were examined by microchemical and X-ray methods. The electrolyte for the isolation of $TiCr_2$ was composed of 3 g succinic acid, 5 ml 1.19 N HCl and 1000 ml MeOH. The anodic current density admissible for the alloy containing 20% Cr was between 0.03 - 0.1 A/cm^2. To isolate Ti_5Si_3 the electrolyte was composed of 10 ml 1.84 NH_2SO_4, 3 g ascorbic acid and 1000 ml MeOH. The

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electrolysis time was 1.5 hr and the optimum current density between 0.03 and 0.05 A/cm^2. Exchange of ascorbic acid for sulphosalicylic acid permits the quantitative isolation of Ti_5Si_3. The electrolytes used had the advantage of not having to be cooled before or during the electrolysis. Further work continues on the isolation of metallic compounds forming in the multicomponent Ti alloys. There are 3 tables.

34476

S/020/62/142/004/013/022
B106/B110

18.1250

AUTHORS: Golubtsova, R. B., and Nude, L. A.

TITLE: Study of isolation conditions of the metallic compound Ni_3Al forming in multicomponent nickel alloys

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 4, 1962, 824 - 827

TEXT: Metallic compounds which can be isolated in the electrolytic dissolution of alloys of the system Ni-Cr-W-Mo-Al-Nb-Ti were studied. Chemical composition and conditions of heat-treatment of the alloys studied are given in Table 1. Five electrolytes used by different authors (Ref. 1: R. B. Golubtsova, L. A. Mashkovich, DAN, 106, no. 6 (1956); Ref. 2: N. F. Lashko, A. F. Likina et al., Sborn. tr. Tsentr. nauchno-issl. inst. tekhnologii i mashinostroyeniya, kn. 59, 1953; Ref. 3: N. I. Blok, A. I. Glazova et al., Zav. lab., 8, 901 (1954)) for isolating the γ'-phase from nickel-base alloys were tested on the alloy no. 1 in order to find conditions for the electrolytic dissolution of these alloys. These electrolytes had the following composition: 1 l CH_3OH, 35 g citric acid,

X

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5 g $(NH_4)_2SO_4$, 15 ml HNO_3 (1.4); 1 l H_2O, 35 g citric acid, 5 g $(NH_4)_2SO_4$, 15 ml HNO_3 (1.4); 1 l H_2O, 10 g ammonium citrate, 100 g $CuSO_4$, 10 ml H_2SO_4 (1.84); 1 l H_2O, 10 g ammonium citrate, 20 g $CuSO_4$, 5 ml H_2SO_4 (1.84); 1 l H_2O, 9 g citric acid, 9 g $(NH_4)_2SO_4$. Chemical and X-ray structural analysis of the powder that separates anodically in the electrolysis in these electrolytes showed that it is in all cases a solid solution on the basis of the chemical compound Ni_3Al in a quantity of ~11.8% of the alloy anodically dissolved. The electrolyte with methanol proved to be the best one, since no hydrolytic precipitation of niobic and tungstic acid takes place therein. The anodic dissolution of the alloys studied takes place in this electrolyte at anode potentials of +1.35 to +1.5 v. Under these conditions also the phase Ni_3Al is precipitated quantitatively. The solid solution on the basis Ni_3Al contains also other dissolved elements. Niobium-containing alloys were anodically dissolved in an electrolyte provided for the isolation of Ni_3Nb in order to find out whether other phases (e. g. Ni_3Nb) are present besides Ni_3Al. In this case, the alloys dissolved at low anode

potentials ($\sim$ +0.35 v) and no powder was separated anodically. Hence it can be concluded that only the compound Ni_3Al which is not precipitated in the electrolyte provided for the isolation of Ni_3Nb, is formed. In order to determine the amount of the phase Ni_3Al in the alloys investigated and the distribution of alloying elements among the γ-solid solution and the Ni_3Al phase, the alloys were anodically dissolved in the mentioned methanol-containing electrolyte and the powder anodically separated was analyzed chemically. The distribution of alloying elements among the phases was calculated from the results (Table 4). γ-solid solution + Ni_3Al phase in the table corresponds to the composition of the alloy, the phase Ni_3Al is the composition of the powder precipitated anodically, relative to the weight of the alloy dissolved during the experiment (anode). The composition of the γ-solid solution was calculated from the difference of element contents in the alloy and in the powder precipitated anodically. This study proved the reliability of the chosen optimum conditions for isolating the compound Ni_3Al from multicomponent nickel-base alloys with contents of

S/020/62/142/004/013/022
B106/B110

Study of isolation conditions...

Cr, W, Mo, Al, Nb, and Ti. Moreover, it was found that the metallic compound Ni_3Al is one of the phases of which the alloys studied are composed. L. I. Pryakhina studied the mentioned alloys in order to establish the phase diagram. R. N. Rogova, Yu. G. Sorokina, V. A. Smirnova, and S. A. Yuganova are mentioned. There are 3 figures, 4 tables, and 5 Soviet references.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences USSR). Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya (Central Scientific Research Institute of Technology and Machine Building)

PRESENTED: September 16, 1961, by I. I. Chernyayev, Academician

SUBMITTED: September 5, 1961

Card 4/6

S/020/62/142/004/013/022
B106/B110

Study of isolation conditions...

Table 1. Legend: (I) Number of alloy; (II) conditions of heat treatment; (III) content of elements, % by weight; (IV) degrees centigrade; (V) hours; (VI) residue.

(I) № сплава	(II) Режим термической обработки	(III) Содержание элементов, вес. %						
		Al	Nb	Ti	Cr	W	Mo	Ni
1	1200° (IV)—100 час. (V)	4,33	—	—	9,60	6,09	3,02	ост. (VI)
2	1200°—100 час (V)	3,86	3,00	—	9,50	6,00	3,00	ост (VI)
3	1200°—200 час (V)	6,87	1,59	—	9,56	6,10	2,90	ост (VI)
4	1200°—200 час (V)	8,47	—	—	3,43	2,41	1,12	ост (VI)
5	1100°—200 час (V)	3,46	—	3,85	9,65	5,50	2,72	ост (VI)

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Study of isolation conditions...

S/020/62/142/004/013/022
B106/B110

Table 4. Distribution of elements among γ-solid solution and the Ni_3Al phase. Legend: (I) Number of alloy; (II) phases of the studied alloys (III) content of elements, % by weight; (IV) γ-solid solution; (V) phase; (VI) sum; * the nickel content of the alloy was calculated by completion to 100%.

№ сплава (I)	Составляющие фазы исследуемых сплавов (II)	Содержание элементов, вес. % (III)							
		Ni*	Cr	W	Mo	Nb	Ti	Al	сумма (VI)
1	γ-Твердый раствор + фаза Ni_3Al	76,96	9,60	6,09	3,02	—	—	4,33	100,00
	Фаза Ni_3Al	8,60	0,55	1,25	0,27	—	—	1,30	11,97
	γ-Твердый раствор	68,36	9,05	4,84	2,75	—	—	3,03	88,03
2	γ-Твердый раствор + фаза Ni_3Al	74,64	9,50	6,00	3,00	3,00	—	3,86	100,00
	Фаза Ni_3Al	19,62	0,87	1,44	0,23	1,52	—	2,91	26,59
	γ-Твердый раствор	55,02	8,63	4,56	2,77	1,48	—	0,95	73,41
3	γ-Твердый раствор + фаза Ni_3Al	72,98	9,56	6,10	2,90	1,59	—	6,87	100,00
	Фаза Ni_3Al	37,30	2,50	1,60	1,04	1,56	—	5,57	49,57
	γ-Твердый раствор	35,68	7,06	4,50	1,86	0,03	—	1,30	50,43
4	γ-Твердый раствор + фаза Ni_3Al	84,57	3,43	2,41	1,12	—	—	8,47	100,00
	Фаза Ni_3Al	13,87	0,50	0,51	0,25	—	—	2,12	17,25
	γ-Твердый раствор	70,70	2,93	1,90	0,87	—	—	6,35	82,75
5	γ-Твердый раствор + фаза Ni_3Al	74,82	9,65	5,50	2,72	—	3,85	3,46	100,00
	Фаза Ni_3Al	30,60	1,02	0,83	0,39	—	2,60	3,46	38,90
	γ-Твердый раствор	44,22	8,63	4,67	2,33	—	1,25	0,0	61,10

Card 6/6

GOLUBTSOVA, R.B.

New electrolyte for the isolation of the Ni_3Nb metal compound from nickel alloys containing niobium. Trudy Inst.met. no.10: 215-216 '62. (MIRA 15:8)
(Electrolytes) (Intermetallic compounds)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000515920012-6"

Card 1/3

on the Enclosure, and proves the presence of Ti_5Si_3. The reasons for the presence

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... from their biphasic alloys by electrolysis. The anodic residues were analyzed

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(N) EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) IJP(c) JD/HW

ACC NR: AP5028913 SOURCE CODE: UR/0020/65/165/003/0559/0561

AUTHOR: Golubtsova, R. B.

36
B

ORG: Institute of Metallurgy im. A. A. Baykov (Institut metallurgii)

TITLE: Selective isolation of the metallic compounds Ni_3Al and Ni_3Ti from multicomponent nickel alloys

44,55 21 27 27

SOURCE: AN SSSR. Doklady, v. 165, no. 3, 1965, 559-561

TOPIC TAGS: nickel alloy, aluminum compound, nickel compound, electrodeposition

ABSTRACT: The study was made on a two-phase ternary alloy containing 75 wt. % Ni_3Ti and 25 wt. % Ni_3Al, and on a multicomponent nickel alloy having a three-phase structure and the composition (in wt. %) Ni_3Ti 52.5, Ni_3Al 17.5, γ^4 30 (γ^4 being a nickel solid solution containing Cr 10, W 6, and Mo 3%). To find the electrolytes for the selective isolation of the phases, the electrochemical behavior of these alloys was investigated in various electrolytes by recording anodic polarization and potential-time curves. The optimum value of the current density at which the deposition was performed was 0.1 A/cm^2. Microchemical analyses of the deposits were carried out. It was found that the selective isolation of the two metallic compounds Ni_3Ti and Ni_3Al can be achieved in electrolytes of the following composition: (1) 20 ml $HClO_4$ (57%), 50 ml HNO_3 (1.40), 1000 ml CH_3OH; (2) 35 g citric acid, 5 g $(NH_4)_2SO_4$, 15 ml HNO_3 (1.40), 1000 ml CH_3OH. Presented by Academician I. I. Chernyayev. Orig. art. has: 2 figures and 3 tables.

Card 1/2

UDC: 669.245

L 13065-66

ACC NR: AP5028913

SUB CODE: 11 / SUBM DATE: 03Feb65 / ORIG REF: 011

Card 2/2 HW

L 21728-66 EWT(m)/EWP(t) IJP(c) JD/JG

ACC NR: AP6008060 SOURCE CODE: UR/0032/66/032/002/0150/0151

AUTHOR: Golubtsova, R. B.; Savvateyeva, S. M.

44

ORG: Institute of Metallurgy im. A. A. Baykov (Institut metallurgii)

B

TITLE: Spectrophotometric determination of chromium 21 in anodic powders

SOURCE: Zavodskaya laboratoriya, v. 32, no. 2, 1966, 150-151

TOPIC TAGS: chromium, spectrophotometric analysis, powder alloy, electrolysis, light absorption

ABSTRACT: The authors attempt to define conditions for chemical determination of gram quantities of chromium in anodic powders produced by electrolytic isolation of intermetallic and carbide phases from chrome-nickel alloys. The proposed spectrophotometric method is based on the reaction of oxidation of diphenyl carbazide by hexavalent chromium in an acid medium. Curves for the light absorption of diphenyl carbazide combined with chromium and for the pure reagent show that the reagent is colorless and has no effect on wavelength selection. It is found that one μg of Cr can be detected in the presence of 30 μg of Ni, 80 μg of Al, 120 μg of W, 270 μg of

2

UDC: 543.7

Card 1/2

L 21728-66

ACC NR: AP6008060

Mo and 375 μg of Ti. The effect of iron is easily eliminated by using ascorbic acid. The best medium is a 3% (by volume) solution of sulfuric acid. The dye is unstable in 10% and 25% acid. The reaction conforms to the Lambert absorption law. The analytic procedure is described in detail. Orig. art. has: 2 figures.

SUB CODE: 07, 11 SUBM DATE: 00/ ORIG REF: 001/ OTH REF: 000

Card 2/2

L 44312-66 EWT(m)/EWP(t)/ETI IJP(c) JD/HW

ACC NR: AP6019833 SOURCE CODE: UR/0370/66/000/001/0136/0138

AUTHOR: Golubtsova, R. B. (Moscow)

ORG: none

40
39
B

TITLE: Selective separation of metallic compounds from multicomponent three-phase alloys

SOURCE: AN SSSR. Izvestiya. Metally, no. 1, 1966, 136-138

TOPIC TAGS: chemical separation, electrolyte, metal compound, nickel base alloy, niobiun compound, aluminum compound, anodization

ABSTRACT: The article deals with the conditions for the anodic isolation of metallic compounds from two multicomponent alloys having a three-phase structure. The phase composition of alloy 1 (15.51% Nb, 0.25% Mo, 1.07% Cr, 0.67% W, 5.72% Al, Ni base) was 45% Ni_3Nb, 45% Ni_3Al and 10% γ4 (solid Ni solution treated with 10% Cr, 6% W and 3% Mo), while the phase composition of alloy 2 (12.60% Nb, 1.46% Mo, 5.51% Cr, 1.38% Al, Ni base) was 33.75% Ni_3Nb, 11.25% Ni_3Al and 55% γ4. The electrolytic behavior of these alloys was investigated in the presence of such electrolytes as: 1) 50 cc 57% $HClO_4$, 10 cc HCl (1.19), 35 g of citric acid, 1000 cc CH_3OH; 2) 50 cc HNO_3 (140), 20 cc 57% $HClO_4$, 1000 cc CH_3OH; 3) 50 cc $HClO_4$, 35 g of

Card 1/4 UDC: 669.017.15

citric acid, 1000 cc CH_3OH. The activizing effect of the chlorine ion is demonstrated after HCl is added to electrolyte 3, which strongly displaces the potential to the left; this results in curves (Fig. 1) characteristic of an alloy in an active state (curve 1). Thus, the phase Ni_3Nb

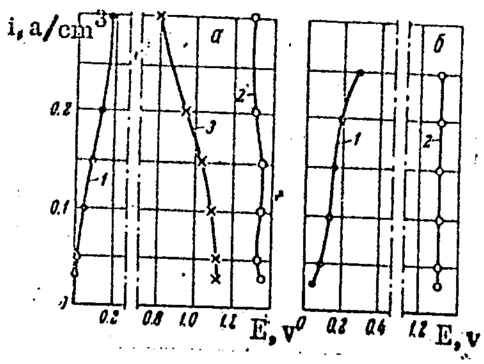

Fig. 1. Curves of anodic polarization of alloys 1 (a) and 2 (b) plotted in the presence of various electrolytes (numerals on curves represent ordinal numbers of electrolytes)

may be selectively isolated in electrolyte 1 despite the presence of another phase, Ni_3Al, in the alloy. The selective isolation of two metallic compounds -- the phases Ni_3Nb and Ni_3Al -- is due to the considerable potential difference of the investigated alloys, which arises in electro-

L 44312-66

ACC NR: AP6019833

lytes 1 and 2 (Fig. 1). For anodic isolation of the phase Ni_3Nb the alloy must exist in an active state, which is evidently associated with the nature of this phase, while the anodic polarization of the phase Ni_3Al should occur in the presence of a marked polarization passivating the surface of the alloy (to this end it is ecpedient to use the highly effective passivators represented by the anions NO_3' and ClO_4' which are part of electrolyte 2). The potential-time curves plotted for alloy 2 (Fig. 2) show that its dissolution occurs in the presence of a fixed

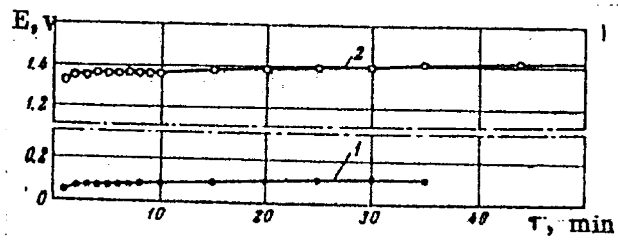

Fig. 2. Variation of potential in time during the anodic dissolution of alloy 2 in electrolytes 1 and 2 (numerals on curves)

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ACC NR: AP6019833

potential which rapidly sets in. The experiments with alloy 1 at current densities i = 0.05 and 0.1 a/cm^2 resulted in the anodic isolation of the compound Ni_3Nb with a rhombic crystal lattice. Radiographic and microchemical analyses showed that the anodic dissolution of alloys 1 and 2 resulted in the isolation of the phase Ni_3Nb with a rhombic lattice except for one case (alloy 1, i = 0.15 a/cm^2, electrolyte 2) where the anodic residue was found to be a cubic face-centered lattice representing a Ni_3Al-base solid solution in which the phase Ni_3Nb is dissolved. The metallic compounds thus isolated can be used to harden various alloys. Orig. art. has: 2 figures, 1 table.

SUB CODE: 11, 07, ~~20~~/ SUBM DATE: 13Dec64/ ORIG REF: 010/

Card 4/4

L 38966-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JG/ES

ACC NR: AP6013373 SOURCE CODE: UR/0370/66/000/002/0174/0176

AUTHOR: Golubtsova, R. B. (Moscow)

3
5
B

ORG: none

TITLE: Separation of the intermetallic phase Ni_3Al from the alloy Ni-Cr-Al

SOURCE: AN SSSR. Izvestiya. Metally, no. 2, 1966, 174-176

TOPIC TAGS: nickel alloy, aluminum containing alloy, chromium containing alloy, electrolytic deposition

ABSTRACT: The separation of the compound Ni_3Al (an important strengthening intermetallic phase in modern heat resistant nickel alloys) from the alloy Ni-Cr-Al (Ni base, 10.00 wt.% Al, 16.05% Cr) was studied in several electrolytes. Anodic polarization curves showed that the most suitable electrolytes for the electrolytic deposition of Ni_3Al are those containing nitric acid; this was confirmed by potential vs. time curves. Measurement of the electrode potentials showed their values to be close and to range from 0.95 to 1.2 V. The high values of the electrode potentials in these electrolytes insure the substantial degree of passivation of the nickel alloy required during its anodic dissolution for the separation of the intermetallic compound from the solid solution. Anodic dissolution experiments confirmed the possibility of isolating the Ni_3Al phase from the alloy in all the chosen electrolytes. In view of the closeness of the atomic radii of nickel (1.24 Å) and chromium

Card 1/2 UDC: 669.017.13

L 38966-66

ACC NR: AP6013373

(1.28 Å), it is postulated that the nickel atoms can be partially replaced by chromium atoms in the Ni_3Al phase. Orig. art. has: 2 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: 21Dec64/ ORIG REF: 004

Card 2/2

GOLUBTSOV, L.A.; ~~GOLUBTSOVA, S.P.;~~ TERLETSKIY, O.I.; KARNAUSHENKO, S.G.; SREBNAYA, L.D.

Antifog light filters for automobile headlights. Stek. i ker. 19 no.8:19-20 Ag '62. (MIRA 15:9)
(Light filters) (Motor vehicles--Lighting)

1. GOLUBTSOVA, V. A.

2. USSR (600)

4. Electric Insulators and Insulatiom

7. Problems of electric insulation in the works of Russian scientists. Elektrichestvo no. 12, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000515920012-6"

GOLUBZOVA, V. A.

"Thermal Splitting of Polyisobutylene", Reports of the Academy of Sciences, USSR, 84, 701-703, June 1952.

ABSTRACT AVAILABLE

D-50054

GOLUBTSOVA, V.A. 11 Feb 52

USSR/Chemistry - Insulating Compound Oils

"The Action of an Electric Field on Petroleum Oils and Their Mixture With Hydrocarbon Polymers," V.A. Golubtsova, All-Union Elec Enging Inst im V.I. Lenin

DAN SSSR, Vol 88, No 5, pp 821-824

Studied the effect of an electric field on petroleum oil (bright stock) and its mixts with polyisobutylene and izol at gradient of 7 kv/mm and freq of 50 cps (const temp of 30) in an atm of H. Gaseous products are separated and the degree of unsatn of the oil is slightly increased. Mixts of petroleum hydrocarbons with rosin oil and mixts of petroleum hydrocarbons with hydrocarbon polymers and rosin oil absorb H (decrease in iodine number). Established that the absorption of H is connected with the hydrogenation of unsatd cmpds of the rosin oil (abietic acid). Presented by Acad A. V. Topchiyev 13 Dec 52.

Source #264T23

GOLUBTSOVA, V.A.; ANDRIANOV, K.A.

Petroleum-base oils and hydrocarbon polymers as dielectrics. Elektrichestvo '53, No.1, 51-6. (MLRA 6:2)
(EEA 56 no.670:4016 '53)

1. GOLUBTSOVA, Docent V. A.

2. USSR (600)

4. Shilling, P. L.

7. Electric insulation in P. L. Shilling's and B.S. Yakobi's writings.
Elektrichestvo, No. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

GOLUBTSOVA, V.A.

Subject : USSR/Electricity AID P - 1218

Card 1/1 Pub. 27 - 13/34

Authors : ~~Golubtsova, V. A.,~~ Kand. of Tech. Sci., and Volkov, V. A., Eng.

Title : Mica in electrical engineering (History of Electrical Engineering)

Periodical : Elektrichestvo, 12, 65-69, D 1954

Abstract : The authors give a historical sketch of the development of the use of mica for insulating purposes. They present a comparative table of the main insulating materials, and describe some of the characteristic properties of mica. They also give a review of production of insulating materials employing mica in the USSR. Two diagrams, 4 tables, 18 references (15 Russian, 1898-1951; 3 non-Russian, 1929, 1906, 1944).

Institution : None

Submitted : No date

Name: GOLUBTSOVA, Valeriya Alekseyevna

Dissertation: History of and prospects for the development of electrical insulating materials for electrical machines, apparatus, wires and cables

Moscow
RSFSR

Degree: Doc Tech Sci

Affiliation: Inst of History of Natural Science, and ~~Technology~~ Engineering, Acad Sci USSR

Defense Date, Place: 30 Dec 55, Council of Moscow Order of Lenin Power Engineering Inst imeni Molotov

Certification Date: 26 May 56

Source: BMVO 4/57

GOLUBTSOVA, V.A.

LEVIT, Grigoriy Osipovich, inzhener; BEL'KIND, L.D., doktor tekhnicheskikh nauk, redaktor; GLAZUNOV, A.A., doktor tekhnicheskikh nauk, redaktor; GOLUBTSOVA, V.A., kandidat tekhnicheskikh nauk, redaktor; ZOLOTAREV, T.L., doktor tekhnicheskikh nauk, redaktor; IZBASH, S.V., doktor tekhnicheskikh nauk, redaktor; KIRILLIN, V.A., redaktor; KONFEDERATOV, I.Ya., doktor tekhnicheskikh nauk, redaktor; PETROV, G.N., doktor tekhnicheskikh nauk, redaktor; SIROTINSKIY, L.I., doktor tekhnicheskikh nauk, redaktor; SOLOV'YEV, I.I., professor, redaktor; STYRIKOVICH, M.A., redaktor; SHNEYBERG, Ya.A., kandidat tekhnicheskikh nauk, redaktor; SHCHEGLYAYEV, A.V., redaktor; ANTIK, I.V., redaktor; FREDKIN, A.M., tekhnicheskiy redaktor

[Outline history of power engineering in the U.S.S.R.] Ocherki po istorii energeticheskoi tekhniki SSSR. Red. komissiia L.D. Bel'kind i dr. Moskva, Gos. energ. izd-vo. No. 3. [Power congresses and conferences] Energeticheskiy s"ezdy i konferentsii. 1956. 98 p. (MLRA 10:4)

1. Moscow. Moskovskiy energeticheskiy institut. 2. Chlen-korrespondent AN SSSR. (for Kirillin, Styrikovich, Shcheglyayev)
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Professor V.S. Pantiushin. Elektrichestvo no.7:93 Jl'56. (MLRA 9:10)

(Pantiushin, Vasilii Sergeevich, 1906-)

GOLUBTSOVA, V.A.

CHILKIN, M.G.; MESHKOV, V.V.; ~~GOLUBTSOVA, V.A.~~; SIROTINSKIY, L.I.; VENIKOV, V.A.; ZOLOTAREV, T.L.; KONFEDERATOV, I.Ya.; SHNEYBERG, Ya.A.; VESELOVSKIY, O.N.

Professor L.D.Bel'kind. Elektrichestvo no.8:93-94 Ag '56. (MLRA 9:10)
(Bel'kind, Lev Davidovich, 1896-)

GOLUBTSOVA, VALERIYA ALEKSEYEVNA

GOLUBTSOVA, Valeriya Alekseyevna; TARBYEV, B.M., red.; MEDVEDEV, L.Ya., tekhn.red.

[History and prospects for the development of electric insulation materials] Istoriia i perspektivy razvitiia elektroizoliatsionnykh materialov. Moskva, Gos.energ.izd-vo, 1957. 76 p. 9 graphs (MIRA 11:2)

(Electric insulators and insulation)

GOLUBTSOVA, V.A.

BADYL'KES, I.S., doktor tekhnicheskikh nauk; BELINSKIY, S.Ya., kandidat tekhnicheskikh nauk; GIMMEL'FARB, M.L., kandidat tekhnicheskikh nauk; KALAFATI, D.D., kandidat tekhnicheskikh nauk; KERTSELLI, L.I., professor; KOVALEV, A.P., doktor tekhnicheskikh nauk; KONFEDERATOV, I.YA., doktor tekhnicheskikh nauk; LAVROV, V.N., doktor tekhnicheskikh nauk; LEBEDEV, P.D., doktor tekhnicheskikh nauk; LUKNITSKIY, V.V., doktor tekhnicheskikh nauk [deceased]; PETUKHOV, B.S., doktor tekhnicheskikh nauk; SATANOVSKIY, A.Ye., kandidat tekhnicheskikh nauk; SEMENENKO, N.A., doktor tekhnicheskikh nauk; SMEL'NITSKIY, S.G., kandidat tekhnicheskikh nauk; SOKOLOV, Ye.Ya., doktor tekhnicheskikh nauk; CHISTYAKOV, S.F., kandidat tekhnicheskikh nauk; SHCHEGLYAYEV, A.V.; BEL'KIND, L.D., doktor tekhnicheskikh nauk, redaktor; GLAZUNOV, A.A., doktor tekhnicheskikh nauk, redaktor; GOLUBTSOVA, V.A., doktor tekhnicheskikh nauk, redaktor; ZOLOTAREV, T.L., doktor tekhnicheskikh nauk, redaktor; IZBASH, S.V., doktor tekhnicheskikh nauk, redaktor; KIRILLIN, V.A., redaktor; MARGULOVA, T.Kh., doktor tekhnicheskikh nauk, redaktor; MESHKOV, V.V., doktor tekhnicheskikh nauk, redaktor; PETROV, G.N., doktor tekhnicheskikh nauk, redaktor; SIROTINSKIY, L.I., doktor tekhnicheskikh nauk, redaktor; STYRIKOVICH, M.A., redaktor; SHNEYBERG, Ya.A., kandidat tekhnicheskikh nauk, redaktor; MATVEYEV, G.A., doktor tekhnicheskikh nauk, redaktor; MEDVEDEV, L.Ya., tekhnicheskiy redaktor

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Vol. 1. [Heat engineering] Teplotekhnika. Avtorskii kollektiv toma Badyl'kes i dr. Red. -sost. toma I.IA.Konfederatov. 1957. 479 p. (MIRA 10:8)

1. Chlen-korrespondent Akademii nauk SSSR (for Shcheglyayev, Kirillin, Styrikovich). 2. Moscow. Moskovskiy energeticheskiy institut

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GOLUBTSOVA, V.A.

ALEKSANDROV, A.G., dots; ARONOVICH, I.S., inzh.; BABIKOV, M.A., doktor tekhn.nauk; BATUSOV, S.V., kand.tekhn.nauk; BEL'KIND, L.D., doktor tekhn.nauk; VENIKOV, V.A., doktor tekhn.nauk; VESELOVSKIY, O.N., kand.tekhn.nauk; GOLOVAN, A.T., doktor tekhn.nauk; GOLUBTSOVA, V.A., doktor tekhn.nauk; GREYNER, L.K., inzh.; GRUDINSKIY, P.G., prof.; GUSEV, S.A., inzh.; DMOKHOVSKAYA, L.F., kand.tekhn.nauk; DROZDOV, N.G., doktor tekhn.nauk; IVANOV, A.P., doktor tekhn.nauk [deceased]; KAGANOV, I.L., doktor tekhn.nauk; KERBER, L.L., inzh.; KOCHENOVA, A.I., kand.tekhn.nauk.; LARIONOV, A.N.; MINOV, D.K., doktor tekhn.nauk; NETUSHIL, A.V., doktor tekhn.nauk; NIKULIN, N.V., kand.tekhn.nauk; NILENDER, R.A., prof.; PANTYUSHIN, V.S., prof.; PASYNKOV, V.V., doktor tekhn.nauk; PETROV, G.N., doktor tekhn.nauk; POLIVANOV, K.M., doktor tekhn.nauk; PRIVEZENTSEV, V.A., doktor tekhn.nauk; RADUNSKIY, L.D., inzh.; RENNE, V.T., doktor tekhn.nauk; SVENCHANSKIY, A.D., doktor tekhn.nauk; SOLOV'YEV, I.I., doktor tekhn.nauk; STUPEL' F.A. kand.tekhn.nauk; TALITSKIY, A.V., prof.; TEMNIKOV, F.Ye., kand.tekhn. nauk; FEDOROV, L.I., inzh.; FEDOSEYEV, A.M., doktor tekhn.nauk; KHOLYAVSKIY, G.B., inzh.; CHECHET, Yu.S., doktor tekhn.nauk; SHNEY-BERG, Ya.A., kand.tekhn.nauk; SHUMILOVSKIY, N.N., doktor tekhn.nauk; ANTIK, I.B., red.; MEDVEDEV, L.Ya., tekhn.red.

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Vol.2. [Electric engineering] Elektrotekhnika. Avtorskii kollektiv toma: Aleksandrov i dr. 1957. 727 p. (MIRA 11:2)

1. Moscow. Moskovskiy energeticheskiy institut. 2. Chlen-korrespondent AN SSSR (for Larionov)
(Electric engineering)

DITMAR, Andrey Borisovich; GOLUBTSOVA, Ye.S., kand. ist. nauk, nauchnyy red.; SOLOV'YEV, A.I., akademik ; red.; PROKHODTSEVA, S.Ya., red.; SHUL'GA, L.K., mladshiy red.; KOSHELEVA, S.M., tekhn. red.

[From Scythia to Elephantine; Herodotus' life and travels] Ot skifii do Elefantiny; zhizn' i puteshestviia Gerodota. Moskva, Geografgiz, 1961. 85 p. (MIRA 15:6)

1. Chlen-korrespondent Akademii pedagogicheskikh nauk (for Solov'yev).
(Herodotus, c.484 - 425 B.C.)

5(2) SOV/79-29-5-1/75

AUTHORS: Morachevskiy, Yu. V., Tserkovnitskaya, I. A., Golubtsova, Z. G.

TITLE: Precipitation of Palladium With Dimethyl Glyoxime in the Presence of Ferric Oxide Salts (Osazhdeniye palladiya dimetilglioksimom v prisutstvii soley okisi zheleza)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1405 - 1408 (USSR)

ABSTRACT: In the present paper the authors investigated the influence of iron upon the precipitation of palladium from hydrochloric, sulfuric, nitric and chloric acid solutions of different concentration. It was first determined how far the acid concentration may be varied without decreasing the yield in palladium. The experiments indicated that the precipitation of palladium with dimethyl glyoxime is still almost complete in 1.5 normal chloric acid, nitric acid and hydrochloric acid solutions. In sulfuric acid solution a 100% precipitation of palladium still takes place from the 2-n solution. The increase in acidity of the solution influences the yield in palladium most in chloric acid and least in sulfuric acid solutions. The results obtained in the precipitation of palladium with dimethyl glyoxime in the presence of

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Precipitation of Palladium With Dimethyl Glyoxime in the Presence of Ferric Oxide Salts SOV/79-29-5-1/75

$FeCl_3$ in hydrochloric acid medium are summarized in table 1. Table 2 presents the results of the precipitation in the presence of $Fe_2(SO_4)_3$ in sulfuric acid medium, table 3 the results in the presence of $Fe(NO_3)_3$ in nitric acid medium and table 4 the results in the presence of trivalent iron in chloric acid medium. The results obtained permit the assumption that there is an interaction between dimethyl glyoxime, iron (III) and palladium in acid solutions in which connection a complex compound is formed. The nature of this compound is not yet clarified. At present the authors are carrying out the spectroscopic investigation of the system palladium-iron-dimethyl glyoxime. There are 4 tables and 2 references, 1 of which is Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: April 22, 1958

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S/075/60/015/004/019/030/XX
B020/B064

AUTHORS: Morachevskiy, Yu. V., Lebedeva, L. I., and Golubtsova, Z. G.

TITLE: Spectrophotometric Study of the Interaction Between the Ions of Trivalent Iron and Dimethyl Glyoxime

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 4, pp. 472 - 475

TEXT: L. A. Chugayev (Ref. 1) was the first to investigate the metal - dioximate complexes. The reaction of trivalent iron with dimethyl glyoxime has hitherto not been fully clarified. Some researchers (Refs. 1,3,4) assume that the salts of trivalent iron do not react with dimethyl glyoxime. In contrast to this, it is known (Refs. 5,6) that the presence of dimethyl glyoxime (Dm) in the solution prevents the precipitation of iron hydroxide even at high pH, a transparent orange-colored solution being formed whose color is stable in time; in the authors' opinion this is due to the formation of a stable iron - dimethylglyoxime complex. A.M.Gurvich (Ref. 6) found that the ratio Fe:Dm is equal to 1:1 in weakly acid solution. The authors proved in Ref. 7 that Fe^{+3} complicates the

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Spectrophotometric Study of the Interaction Between the Ions of Trivalent Iron and Dimethyl Glyoxime

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quantitative precipitation of palladium with dimethyl glyoxime, sometimes preventing it at all. Experiments showed that iron reacts with a dimethyl glyoxime excess in acid solution; the reaction rate is, however, very low at pH$\approx$3, which is due to the low degree of dissociation of dimethyl glyoxime. At a pH of 2.5 - 3, equilibrium is established after about one day, i.e., at a dimethyl glyoxime concentration of an order of 10^{-3} g.mole/l and at an iron concentration of 10^{-4} g.atom/l; for this reason, this range of concentration was chosen for the investigation. Trivalent iron reacts with dimethyl glyoxime both in acid (pH$\approx$3) and alkaline solutions under the formation of a complex ion. The composition of the dimethyl glyoxime - Fe^{3+} complexes was examined with the spectrophotometer СФ-4 (SF-4), the hydrogen ion concentration in the acid range potentiometrically with a glass electrode and titrimetrically in the basic range. The composition of the complex was determined by the method of isomolar series and by logarithmic determination of the limit. Fig.1 shows the experimental results at three wave lengths for series with a concentration of $4.17 \cdot 10^{-3}$ g.mole/l. The curves diverging from additivity show a

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Spectrophotometric Study of the Interaction Between the Ions of Trivalent Iron and Dimethyl Glyoxime S/075/60/015/004/019/030/XX B020/B064

maximum at a ratio of the components of 1:1. The same result was obtained by logarithmic determination of the limit for dimethyl glyoxime and Fe^{3+} salt excess. Fig. 2 lists the data obtained. The lack of a distinct maximum (Fig. 1) in the present case is no proof of a poor stability of the complex formed in this range. The composition of the complex in the alkaline region was investigated by logarithmic determination of the limit and found to be $Fe:H_2Dm = 1:1$ (Fig. 3). At pH = 3, the solution mainly contains $Fe(OH)^{2+}$ ions, which indicates that the complex formation proceeds according to the equation $Fe(OH)^{2+} + H_2Dm \rightleftharpoons FeOH(HDm)^+ + H^+$. The authors made an attempt to calculate the instability constant of the complex using the relations derived by V. N. Tolmachev (Ref. 8), which, together with the dissociation constants and optical densities are given in a table. The calculated instability constant $K_{FeOH(HDm)^+}$ equals $2.86 \cdot 10^{-12}$. There are 3 figures, 1 table, and 8 references: 7 Soviet and 1 US.

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Spectrophotometric Study of the Interaction Between the Ions of Trivalent Iron and Dimethyl Glyoxime

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B020/B064

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

SUBMITTED: May 30, 1959

Card 4/4

GOLUBTSOVA, Z. G.

Cand Chem Sci - (diss) "Spectrophotometric study of the system palladium-dimethylglyoxime-iron(III) in aqueous solutions." Leningrad, 1961. 14 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Leningrad Order of Labor Red Banner Technology Inst imeni Lensovet); 180 copies; price not given; (KL, 6-61 sup, 197)

GOLUBTSOVA, Z.G.; LEBEDEVA, L.I.; MORACHEVSKIY, Yu.V. [deceased]

Interaction in the system palladium--dimethylglyoxime--trivalent iron. Zhur.anal.khim. 16 no.2:191-195 Mr-Ap '61. (MIRA 14:5)

1. A. A. Zhdanov Leningrad State University.
(Palladium compounds)
(Glyoxime)
(Iron)

GOLUBUSHIN, Yu. [Holubushin, IU.], nauchnyy sotrudnik

"The Constitution of Eight Hieroglyphics." Znan. ta pratsia no.8:12-13 Ag '60. (MIRA 13:9)

1. Institut ekonomiki AN USSR.
(China—Agriculture)

GOLUBUSHIN, Yuriy Sergeyevich [Holubushin, IU.S.]; DANILYUK, Zinoviy Zinov'yevich [Danyliuk, Z.Z.]; CHUMACHENKO, V.S., red. izd-va; ROZENTSVEYG, Ye.N., tekhn. red.

[Socialist countries on the path toward communism] Sotsialistychni krainy na shliakhu do komunizmu. Kyiv, Vyd-vo Akad. nauk URSR, 1962. 51 p. (MIRA 15:12)
(Communist countries—Economic conditions)

KIPRIANOV, A.I.; GOLUBUSHINA, G.M.

Cyanine dyes from 2-methyl-5,6-dioxybenzothiazole. Ukr. khim. zhur. 29 no.11:1173-1179 '63. (MIRA 16:12)

1. Kiyevskiy gosudarstvennyy universitet im. T.G. Shevchenko.

GOLUBUSHKIN, P.N.

Additional contact blocking at the control station of TPSK and TPS-50-I capron hosiery stabilizing machines. Obm.tekh.opyt. [MLP] no.36:39-40 '56. (MIRA 11:11)
(Hosiery, Nylon) (Automatic control)

GOLUBUVA, M. S

USSR/Physical Chemistry - Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical Analysis. Phase Transitions, B-8

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 372

Author: Golubuva, M. S., and Bergman, A. G.

Institution: None

Title: A Ternary Mutual System Composed of Potassium and Calcium Sulfates and Chlorides

Original Periodical: Zh. obshch. khimii, 1956, Vol 26, No 2, 328-338

Abstract: The mutual system K, Ca // Cl, SO_4 has been studied by the visual-polythermic melting method. It has been established that the crystallization surface of the system consists of 8 areas which intersect at 7 multiple points and differ considerably from those found earlier (Jaenecke, anorgan. allgem. Chem., 1936, 228, 241). Two transition points (at 676 and 748°) and one transit point (at 653°) were found. From a comparison of the 2 phase diagrams for the mutual system in water solution and in the fused state, the conclusion has been drawn

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USSR/Physical Chemistry - Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical Analysis. Phase Transitions, B-8

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 372

Abstract: that complex formation in water solution is weakened by the chemical activity of water.

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GOLUBYATNIKOV, A.I.

Study of forage plants in secondary schools. Politekh.obuch. no.10:44-46 O '58. (MIRA 11:11)
(Forage plants--Study and teaching)

GOLUBYATNIKOV, A.N.

Nonlinear spinor functions. Dokl. AN SSSR 165 no.2:265-267 N '65. (MIRA 18:11)

1. Submitted April 3, 1965.

KOBILYATSKIY, V.G., inzh.; GOLUBYATNIKOV, B.G., inzh.

Vertically closed conveyor. Mashinostroenie no.6:40-41 N-D '63.
(MIRA 16:12)

GOLUBYATNIKOV, B.P.

Feeder block for the 234 molding machine. Mashinostroenie no.4:64-65 Jl-Ag '63. (MIRA 17:2)

GOLUBYATNIKOV, B.P., inzh.; KOBILYATSKIY, V.G., inzh.

Automatic line for producing small cast-iron castings. Mekh. i avtom.proizv. 19 no.3:3-/ Mr '65. (MIRA 18:4)

GOLUBYATNIKOV, B.P., inzh.; DORON'KO, I.Ya., inzh.

Automatic machine for pressing molds under high specific pressure conditions. Mashinostroenie no.6:8-9 N-D '65. (MIRA 18:12)

GOLUBYATNIKOV, D.V.

Upper Paleozoic volcanic apparatus Aydarly (central Kazakhstan). Trudy VSEGEI 98:117-127 '63. (MIRA 17:5)

DOTSENKO, T.K.; SURCHAKOV, A.V.; BELYAYEVA, A.M.; KOROTOVSKAYA, N.T.; GOLUBYATNIKOV, F.I.; KOZLOVA, M.F.

Use of new insecticides in controlling synanthropic flies in nonisolated sectors. Med.paraz.i paraz.bol. no.3:355-359 '62. (MIRA 15:9)

1. Iz Kuybyshevskogo nauchno-issledovatel'skogo instituta epidemiologii, mikrobiologii i gigiyeny (dir. K.P. Vasil'yev), Gorodskoy sanitarno-epidemiologicheskoy stantsii (glavnyy vrach A.A. Galaktionova, zav. parazitologicheskim otdelom N.T. Korotovskaya) i Gorodskoy dezinfektsionnoy stantsii (zav. M.F. Kozlova).

(FLIES—EXTERMINATION) (INSECTICIDES)

AGALINA, M.S., inzh.; AKUTIN, T.K., inzh.; APRESOV, A.M., inzh.; ARISTOV, S.S., kand. tekhn. nauk,; BELOSTOTSKIY, O.B., inzh.; BERLIN, A.Ye., inzh.; BESSKIY, K.A., inzh.; BLYUM, A.M., inzh.; BRAUN, I.V., inzh.; BRODSKIY, I.A., inzh.; BURAKAS, A.I., inzh.; VAYNMAN, I.Z., inzh.; VARSHAVSKIY, I.N., inzh.; VASIL'YEVA, A.A., inzh.; VORONIN, S.A., inzh.; VOYTSEKHOVSKIY, L.K., inzh.; VRUBLEVSKIY, A.A., inzh.; GERSHMAN, S.G., inzh.; GOLUBYATNIKOV, G.A., inzh.; GORLIN, M.Yu., inzh.; GRAMMATIKOV, A.N., inzh.; DASHEVSKIY, A.P., inzh.; DIDKOVSKIY, I.L., inzh.; DOBROVOL'SKIY, N.L., inzh.; DROZDOV, P.F., kand. tekhn. nauk,; KOZLOVSKIY, A.A., inzh.; KIRILENKO, V.G., inzh.; KOPELYANSKIY, G.D., kand. tekhn. nauk,; KORETSKIY, M.M., inzh.; KUKHARCHUK, I.N., inzh.; KUCHER, M.G., inzh.; MERZLYAK, M.V., inzh.; MIRONOV, V.V., inzh.; NOVITSKIY, G.V., inzh.; PADUN, N.M., inzh.; PANKRAT'YEV, N.B., inzh.; PARKHOMENKO, V.I., kand. biol. nauk,; PINSKIY, Ye.A., inzh.; PODLUBNYY, S.A., inzh.; PORAZHENKO, F.F., inzh.; PUZANOV, I.G., inzh.; REDIN, I.P. inzh.; REZNIK, I.S., kand. tekhn. nauk,; ROGOVSKIY, L.V., inzh.; RUDERMAN, A.G., inzh.; RYBAL'SKIY, V.I., inzh.; SADOVNIKOV, I.S., inzh.; SEVER'YANOV, N.N., kand. tekhn. nauk,; SEMESHKO, A.T., inzh.; SIMKIN, A.Kh., inzh.: SURDUTOVICH, I.N., inzh.; TROFIMOV, V.I., inzh.; FEFER, M.M., inzh.; FIALKOVSKIY, A.M., inzh.; FRISHMAN, M.S., inzh.; CHERESHNEV, V.A., inzh.; SHESTOV, B.S., inzh.; SHIFMAN, M.I., inzh.; SHUMYATSKIY, A.F., inzh.; SHCHERBAKOV, V.I., inzh.; STANCHENKO, I.K., otv. red.: LISHIN, G.L., inzh., red.: KRAVTSOV, Ye.P., inzh., red.; GRIGOR'YEV, G.V., red.; KAMINSKIY, D.N., red.; KRASOVSKIY, I.P., red.; LEYTMAN, L.Z., red.[deceased],; GUREVICH, M.S., inzh., red.; DANILEVSKIY, A.S., inzh., red.; DEMIN, A.M., inzh., red.; KAGANOV, S.I., inzh., red.; KAUFMAN, B.N., kand. tekhn. nauk, red:.LISTOPADOV, N.P., inzh., red.; MENDELEVICH, I.R., inzh., red.[deceased];

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